

**CLAIMS**

1        1.     A graphics system comprising:  
2             a depth buffer device to store at least one variable-formatable floating point number relating to  
3             a depth of a pixel of an image; and  
4             a first processing device to perform a depth test by comparing a value associated with a  
5             current pixel to a value associated with a corresponding pixel stored in said depth buffer device.

1        2.     The system of claim 1, wherein said depth buffer device stores at least a value relating  
2             to a W value of each pixel of said image.

1        3.     The system of claim 1, further comprising a second processing device to calculate a  
2             number of fraction bits of said variable-formatable floating point number.

1        4.     The system of claim 3, further comprising at least one register to store the calculated  
2             number of fraction bits.

1        5.     The system of claim 1, wherein said first processing device compares a  $W/W_{far}$  value  
2             of said current pixel with a  $W/W_{far}$  value of the corresponding pixel stored in said depth buffer device.

1           6.     The system of claim 1, further comprising a display device to display an image based  
2     on a result of said depth test.

1           7.     A system comprising:  
2             a depth buffer device to store at least a value relating to a pixel of an image; and  
3             a processing device to determine a format of said value stored in said depth buffer device and  
4     to perform a depth test for pixels in said image based on values stored within said depth buffer device.

1           8.     The system of claim 7, wherein said depth buffer device stores at least a value relating  
2     to a W value of each pixel.

1           9.     The system of claim 7, wherein said value comprises a floating point number.

1           10.    The system of claim 9, wherein said floating point number comprises a variable-  
2     formatable floating point number.

1           11.    The system of claim 7, wherein said processing device calculates a number of fraction  
2     bits of said floating point number.

1           12.    The system of claim 11, further comprising at least one register to store the calculated  
2     number of fraction bits.

1 13. The system of claim 7, wherein said processing device compares a W/Wfar value of a  
2 current pixel with a W/Wfar value of the corresponding pixel stored in said depth buffer device.

1 14. The system of claim 7, further comprising a display device to display an image based  
2 on a result of said depth test.

1 15. A method comprising:  
2 determining a format of a depth buffer device;  
3 storing a value associated with a pixel of an image in said depth buffer device based on the  
4 determined format of said depth buffer device, and  
5 comparing a value associated with a current pixel to said value stored in said depth buffer  
6 device in said determined format.

1 16. The method of claim 15, wherein determining said format comprises calculating a  
2 number of fraction bits of a floating point number.

1 17. The method of claim 16, further comprising storing said calculated number of fraction  
2 bits in a register.

1 18. The method of claim 17, wherein said stored value is based on said calculated number  
2 of fraction bits stored in said register.

1 19. The method of claim 15, further comprising displaying an image based on said  
2 comparison.

1 20. The method of claim 15, wherein said stored value in said depth buffer device relates  
2 to a W value of each pixel.

1 21. The method of claim 15, wherein said comparing comprises comparing a W/Wfar  
2 value of said current pixel with a W/Wfar value of the corresponding pixel stored in said depth buffer  
3 device.

1 22. A method of performing a depth test for an image, said method comprising:  
2 calculating a number of fraction bits for a depth buffer device; and  
3 storing a value of a current pixel in said depth buffer device in a format based on said  
4 calculated number of fraction bits.

1 23. The method of claim 22, further comprising performing said depth test by comparing a  
2 value associated with said current pixel to said value associated with a corresponding pixel stored in  
3 said depth buffer device.

1 24. The method of claim 23, further comprising displaying said image based on said depth test.

1           25.     The method of claim 23, wherein said comparing comprises comparing a W/Wfar  
2     value of said current pixel with a W/Wfar value of the corresponding pixel stored in said depth buffer  
3     device.

1           26.     The method of claim 22, wherein said stored value in said depth buffer device relates  
2     to a W value of one pixel of said image.

1           27.     A program storage device readable by machine, tangibly embodying a program of  
2     instructions executable by the machine to perform a method comprising:  
3         determining a format of a depth buffer device; and  
4         storing a value of said determined format.

1           28.     The program storage device of claim 27, wherein said method further comprises:  
2         storing a value associated with a pixel of an image in said depth buffer device based on the  
3         determined format of said depth buffer device; and  
4         comparing a value associated with a current pixel to said value stored in said depth buffer  
5         device in said determined format.

1           29.     The program storage device of claim 27, wherein determining said format comprises  
2     calculating a number of fraction bits of a floating point number.

1           30.     The program storage device of claim 29, wherein said stored value is based on said  
2     calculated number of fraction bits.